

Claims

- [c1] An improved airbag for minimizing a risk of injury to a vehicle occupant, comprising:
an inflatable bag configured with a primary chamber and a secondary chamber that is positioned adjacent to said primary chamber, said primary chamber inflating before said secondary chamber and applying a generally downward force to a lower-body portion of the vehicle occupant in order to allocate a substantial portion of an initial impact force to said lower-body portion and to position the vehicle occupant for minimizing a risk of injury to the vehicle occupant;
wherein said inflatable bag is deployed sequentially in a generally linearly upward direction from said primary chamber to said secondary chamber.
- [c2] The improved airbag of claim 1 wherein said primary chamber includes an upper sub-chamber and a lower sub-chamber, said lower sub-chamber extending substantially across a width and a depth of the improved airbag, said lower sub-chamber for allocating said substantial portion of said initial impact force to said lower-body portion of the vehicle occupant, said upper sub-

chamber being sized substantially smaller than said lower sub-chamber along said depth of the improved airbag, said upper sub-chamber for absorbing and re-directing said initial impact force generally downward, said upper sub-chamber also for providing immediate protection for an upper-body region of the vehicle occupant.

[c3] The improved airbag of claim 2 wherein said upper sub-chamber is sized substantially smaller than said lower sub-chamber along said width of the improved airbag.

[c4] The improved airbag of claim 1 further comprising: a releasable tether attached to said inflatable bag for maintaining said secondary chamber in a collapsed configuration until a sufficient threshold pressure causes said releasable tether to detach from said inflatable bag and allow said secondary chamber to inflate.

[c5] The improved airbag of claim 1 wherein said inflatable bag includes a primary inlet for allowing a gas to be injected directly into said primary chamber of said inflatable bag.

[c6] The improved airbag of claim 5 wherein said inflatable bag includes a secondary inlet for allowing said gas to flow from said primary chamber to said secondary

chamber.

- [c7] The improved airbag of claim 6 wherein said secondary inlet is at least one open vent hole.
- [c8] The improved airbag of claim 6 wherein said secondary inlet is at least one baffle vent.
- [c9] The improved airbag of claim 6 wherein said secondary inlet is a permeable fabric panel integrated within said inflatable bag.
- [c10] An improved airbag for minimizing a risk of injury to a vehicle occupant, comprising:
an inflatable bag having at least one panel configured for defining a primary chamber and a secondary chamber that is adjacent to said primary chamber, said primary chamber inflating before said secondary chamber and applying a generally downward force to a lower-body portion of the vehicle occupant in order to allocate a substantial portion of an initial impact force to said lower-body portion and to position the vehicle occupant for minimizing a risk of injury to the vehicle occupant; wherein said inflatable bag is deployed sequentially in a generally linearly upward direction from said primary chamber to said secondary chamber.
- [c11] The improved airbag of claim 10 wherein said at least

one panel is configured for defining said primary chamber with an upper sub-chamber and a lower sub-chamber, said lower sub-chamber extending substantially across a width and a depth of the improved airbag, said lower sub-chamber for allocating said substantial portion of said initial impact force to said lower-body portion of the vehicle occupant, said upper sub-chamber being sized substantially smaller than said lower sub-chamber along said depth of the improved airbag, said upper sub-chamber for absorbing and re-directing said initial impact force generally downward, said upper sub-chamber also for providing immediate protection for an upper-body region of the vehicle occupant.

[c12] The improved airbag of claim 11 wherein said upper sub-chamber is sized substantially smaller than said lower sub-chamber along said width of the improved airbag.

[c13] The improved airbag of claim 10 further comprising: a releasable tether attached to said at least one panel for maintaining said secondary chamber in a collapsed configuration until a sufficient threshold pressure causes said releasable tether to detach from said at least one panel and allow said secondary chamber to inflate.

[c14] The improved airbag of claim 10 wherein said at least

one panel includes a primary inlet for allowing a gas to be injected directly into said primary chamber of said inflatable bag.

[c15] The improved airbag of claim 14 wherein said at least one panel includes a secondary inlet for allowing said gas to flow from said primary chamber to said secondary chamber.

[c16] The improved airbag of claim 15 wherein said secondary inlet is at least one open vent hole.

[c17] The improved airbag of claim 15 wherein said secondary inlet is at least one baffle vent.

[c18] The improved airbag of claim 15 wherein said secondary inlet is a permeable fabric panel integrated within said inflatable bag.

[c19] An improved airbag for minimizing a risk of injury to a vehicle occupant, comprising:
a first outer panel having a primary inlet for allowing a gas to be injected into the improved airbag;
a second outer panel coupled to said first outer panel and sized substantially similar to said first outer panel;
and
an inner panel attached to and extending between said first outer panel and said second outer panel for defining

a primary chamber and a secondary chamber of the improved airbag, said inner panel having a secondary inlet for allowing said gas to pass between said primary chamber and said secondary chamber;

wherein said primary chamber inflates before said secondary chamber and applies a generally downward force to a lower-body portion of the vehicle occupant in order to allocate a substantial portion of an initial impact force to said lower-body portion and to position the vehicle occupant for minimizing a risk of injury to the vehicle occupant;

wherein said inflatable bag is deployed sequentially in a generally linearly upward direction from said primary chamber to said secondary chamber.

[c20] The improved airbag of claim 19 wherein said inner panel, said first outer panel, and said second outer panel define said primary chamber with an upper sub-chamber and a lower sub-chamber, said lower sub-chamber extending substantially across a width and a depth of the improved airbag, said lower sub-chamber for allocating said substantial portion of said initial impact force to said lower-body portion of the vehicle occupant, said upper sub-chamber being sized substantially smaller than said lower sub-chamber along said depth of the improved airbag, said upper sub-chamber for absorbing

and re-directing said initial impact force generally downward, said upper sub-chamber also for providing immediate protection for an upper-body region of the vehicle occupant.